

IN THE CLAIMS:

1. (Previously Presented) A process for the production of a polysiloxane containing mass incorporating surface treated filler materials comprising feeding materials to a change can mixer in which the materials are mixed; the change can mixer comprising a detachable mixing head assembly containing at least two spiral mixing arms extending downwardly into a can of the change can mixer, drive means for rotating the spiral mixing arms around their own axis, and drive means for rotating the spiral mixing arms as a unit around the axis of the can and wherein the geometry of the mixing arms is such that they generate downwardly directing motion on the composition being mixed, the materials being mixed to form a mixture in the change can mixer comprising:

- (i) a polysiloxane having more than 40 siloxane units, which is selected from the group consisting of trialkylsilyl end blocked polysiloxanes, and polysiloxanes having at least one silicon bonded alkenyl group, hydroxyl group, and hydrolysable group;
- (ii) a reinforcing filler material selected from the group consisting of finely divided silica, surface treated finely divided silica, calcium carbonate, surface treated finely divided calcium carbonate, quartz powder, aluminium hydroxide, zirconium silicate, diatomaceous earth, and titanium dioxide; and
- (iii) an hydrophobing agent selected from the group consisting of disilazanes and polydiorganosiloxanes having 2-40 siloxane units having silicon bonded hydroxyl groups or amino groups;

with the proviso that each of the materials (i)-(iii) are fed into the change can mixer as the material itself, or as a mixture containing one or more of materials (i)-(iii); and wherein the change can comprises one or more perforations therein.

2. (Canceled)

3. (Previously Presented) A process in accordance with claim 1 wherein a resulting mixture is stripped by passing an inert gas through the perforation(s) into the mixture during and/or after the mixing process.
4. (Previously Presented) A process in accordance with claim 1 wherein, subsequent to mixing, a resulting mixture is extruded through the perforation(s) by means of a suitable press.
5. (Original) A process in accordance with claim 4 wherein the press is a pot press.
6. (Previously Presented) A process in accordance with claim 1 wherein after mixing, the mixture is conveyed to a de-airing unit for the removal of gaseous materials from the mixture.
7. (Previously Presented) A process in accordance with claim 1 wherein after mixing, the resulting mixture is conveyed into and through a means for introducing additives into the mixture.

8. (Previously Presented) A process in accordance with claim 19 wherein the means for introducing additives into the mixture comprises a single screw extruder comprising:
- a) an elongate barrel having an inlet for introducing a polymer into the extruder and an outlet for discharging extruded polymer from the barrel;
 - b) a rotatable screw axially disposed within the barrel for advancing polymer in the extruder from the inlet to the outlet; and
 - c) one or more additive introduction means for introducing at least one additive at one or more predefined positions along the barrel of the single screw extruder between the inlet and the outlet,

wherein immediately upstream of the additive introduction means there is provided, on or around the screw, a plug having a plurality of apertures, the plug being adapted such that, in use, the only way for polymer or polymer/additive mixture to move downstream of the plug is by passing through the apertures and that, having passed through the apertures, the polymer or polymer/additive mixture is subjected to a reduction in pressure and is simultaneously mixed with an additive from the one or more additive introduction means prior to transportation of the resulting polymer additive mixture to the outlet.

9. (Original) A process in accordance with claim 7 wherein the means for introducing additives into the mixture is an apparatus for continuously preparing viscous compositions containing additives comprising:
- (i) a mixing device for uniformly mixing and dispersing an additive into a viscous fluid;
 - (ii) one or more servo motor driven pumps for feeding the viscous fluid to the mixing device;
 - (iii) one or more servo motor driven pumps for feeding the additive to the mixing device;
 - (iv) means for supplying the viscous fluid to the viscous fluid servo motor driven pumps;
 - (v) means for supplying the additive to the additive servo motor driven pumps;
 - (vi) means for dispensing a viscous composition containing the fluid and the additive from the mixing device into a container;
 - (vii) a programmable logic computer, constructed and arranged to control the operation of the servo motor driven pumps for the viscous fluid and the servo motor driven pumps for the additive, so that a predetermined ratio of RPM between the servo motor driven pumps for the viscous fluid and the servo motor driven pumps for the additive, is maintained irrespective of pressure surges in the supply means for the viscous fluid and supply means for the additive; and
 - (viii) a temperature compensation algorithm for compensating fluctuations in temperature of the viscous fluid.
10. (Previously Presented) A process according to claim 1 in which the finely divided filler comprises fumed silica or precipitated silica.
11. (Previously Presented) A process according to claim 1 in which the mixture is in the form of a paste or a powder.
12. (Previously Presented) A process according to claim 1 in which the materials being mixed to form the mixture in the change can mixer include water.

13. (Previously Presented) A process according to claim 1 in which the mixture is further compounded with one or more other materials comprising curative agents, catalysts, inhibitors, plasticising agents, extending agents, and non-reinforcing fillers, to provide a curable product.
14. (Previously Presented) A process according to claim 1 in which the change can mixer contains 2-5 spiral mixing arms extending downwardly into the can of the change can mixer.
15. (Previously Presented) A process according to claim 14 in which the change can mixer contains three spiral mixing arms spaced 120 degrees apart circumferentially with respect to the centre line of the can of the change can mixer.
16. (Currently Amended) A process according to claim 1 in which the spiral mixing ~~[[tools]]~~ arms carry a non metallic edge to avoid build up of material on the pot walls.
17. (Canceled)
18. (Previously Presented) A process in accordance with claim 3 wherein, subsequent to mixing, a resulting mixture is extruded through the perforation(s) by means of a suitable press.
19. (Previously Presented) A process in accordance with claim 7 wherein the means for introducing additives into the mixture is a twin screw extruder or a single screw extruder.

20. (Previously Presented) A process for the production of a polysiloxane containing mass incorporating surface treated filler materials comprising feeding materials to a change can mixer in which the materials are mixed; the change can mixer comprising a detachable mixing head assembly containing at least two spiral mixing arms extending downwardly into a can of the change can mixer, drive means for rotating the spiral mixing arms around their own axis, and drive means for rotating the spiral mixing arms as a unit around the axis of the can and wherein the geometry of the mixing arms is such that they generate downwardly directing motion on the composition being mixed, the materials being mixed to form a mixture in the change can mixer comprising:

- (i) a polysiloxane having more than 40 siloxane units, which is selected from the group consisting of trialkylsilyl end blocked polysiloxanes, and polysiloxanes having at least one silicon bonded alkenyl group, hydroxyl group, and hydrolysable group;
- (ii) a reinforcing filler material selected from the group consisting of finely divided silica, surface treated finely divided silica, calcium carbonate, surface treated finely divided calcium carbonate, quartz powder, aluminium hydroxide, zirconium silicate, diatomaceous earth, and titanium dioxide; and
- (iii) an hydrophobing agent selected from the group consisting of disilazanes and polydiorganosiloxanes having 2-40 siloxane units having silicon bonded hydroxyl groups or amino groups;

with the proviso that each of the materials (i)-(iii) are fed into the change can mixer as the material itself, or as a mixture containing one or more of materials (i)-(iii); and wherein after mixing the mixture is conveyed to a de-airing unit for the removal of gaseous materials from the mixture.

21. (Previously Presented) A process in accordance with claim 20 wherein after mixing the resulting mixture is conveyed into and through a means for introducing additives into the mixture.

22. (Previously Presented) A process in accordance with claim 21 wherein the means for introducing additives into the mixture is a twin screw extruder, a single screw extruder, or an apparatus for continuously preparing viscous compositions containing additives.
23. (Previously Presented) A process according to claim 20 in which the finely divided filler comprises fumed silica or precipitated silica.
24. (Previously Presented) A process according to claim 20 in which the mixture is in the form of a paste or a powder.
25. (Previously Presented) A process according to claim 20 in which the mixture is further compounded with one or more other materials comprising curative agents, catalysts, inhibitors, plasticising agents, extending agents, and non-reinforcing fillers, to provide a curable product.
26. (Previously Presented) A process according to claim 20 in which the change can mixer contains 2-5 spiral mixing arms extending downwardly into the can of the change can mixer.
27. (Previously Presented) A process according to claim 26 in which the change can mixer contains three spiral mixing arms spaced 120 degrees apart circumferentially with respect to the centre line of the can of the change can mixer.
28. (Currently Amended) A process according to claim 20 in which the spiral mixing ~~[[tools]]~~ arms carry a non metallic edge to avoid build up of material on the pot walls.

29. (Previously Presented) A process for the production of a polysiloxane containing mass incorporating surface treated filler materials comprising feeding materials to a change can mixer in which the materials are mixed; the change can mixer comprising a detachable mixing head assembly containing at least two spiral mixing arms extending downwardly into a can of the change can mixer, drive means for rotating the spiral mixing arms around their own axis, and drive means for rotating the spiral mixing arms as a unit around the axis of the can and wherein the geometry of the mixing arms is such that they generate downwardly directing motion on the composition being mixed, the materials being mixed to form a mixture in the change can mixer comprising:

- (i) a polysiloxane having more than 40 siloxane units, which is selected from the group consisting of trialkylsilyl end blocked polysiloxanes, and polysiloxanes having at least one silicon bonded alkenyl group, hydroxyl group, and hydrolysable group;
- (ii) a reinforcing filler material selected from the group consisting of finely divided silica, surface treated finely divided silica, calcium carbonate, surface treated finely divided calcium carbonate, quartz powder, aluminium hydroxide, zirconium silicate, diatomaceous earth, and titanium dioxide; and
- (iii) an hydrophobing agent selected from the group consisting of disilazanes and polydiorganosiloxanes having 2-40 siloxane units having silicon bonded hydroxyl groups or amino groups;

with the proviso that each of the materials (i)-(iii) are fed into the change can mixer as the material itself, or as a mixture containing one or more of materials (i)-(iii); and wherein after mixing, the resulting mixture is conveyed into and through a means for introducing additives into the mixture.

30. (Previously Presented) A process in accordance with claim 29 wherein the means for introducing additives into the mixture is a twin screw extruder or a single screw extruder.

31. (Previously Presented) A process in accordance with claim 30 wherein the means for introducing additives into the mixture comprises a single screw extruder comprising:
- a) an elongate barrel having an inlet for introducing a polymer into the extruder and an outlet for discharging extruded polymer from the barrel;
 - b) a rotatable screw axially disposed within the barrel for advancing polymer in the extruder from the inlet to the outlet; and
 - c) one or more additive introduction means for introducing at least one additive at one or more predefined positions along the barrel of the single screw extruder between the inlet and the outlet,

wherein immediately upstream of the additive introduction means there is provided, on or around the screw, a plug having a plurality of apertures, the plug being adapted such that, in use, the only way for polymer or polymer/additive mixture to move downstream of the plug is by passing through the apertures and that, having passed through the apertures, the polymer or polymer/additive mixture is subjected to a reduction in pressure and is simultaneously mixed with an additive from the one or more additive introduction means prior to transportation of the resulting polymer additive mixture to the outlet.

32. (Previously Presented) A process in accordance with claim 29 wherein the means for introducing additives into the mixture is an apparatus for continuously preparing viscous compositions containing additives comprising:
- (i) a mixing device for uniformly mixing and dispersing an additive into a viscous fluid;
 - (ii) one or more servo motor driven pumps for feeding the viscous fluid to the mixing device;
 - (iii) one or more servo motor driven pumps for feeding the additive to the mixing device;
 - (iv) means for supplying the viscous fluid to the viscous fluid servo motor driven pumps;
 - (v) means for supplying the additive to the additive servo motor driven pumps;
 - (vi) means for dispensing a viscous composition containing the fluid and the additive from the mixing device into a container;
 - (vii) a programmable logic computer, constructed and arranged to control the operation of the servo motor driven pumps for the viscous fluid and the servo motor driven pumps for the additive, so that a predetermined ratio of RPM between the servo motor driven pumps for the viscous fluid and the servo motor driven pumps for the additive, is maintained irrespective of pressure surges in the supply means for the viscous fluid and supply means for the additive; and
 - (viii) a temperature compensation algorithm for compensating fluctuations in temperature of the viscous fluid.

33. (Previously Presented) A process for the production of a polysiloxane containing mass incorporating surface treated filler materials comprising feeding materials to a change can mixer in which the materials are mixed; the change can mixer comprising a detachable mixing head assembly containing at least two spiral mixing arms extending downwardly into a can of the change can mixer, drive means for rotating the spiral mixing arms around their own axis, and drive means for rotating the spiral mixing arms as a unit around the axis of the can and wherein the geometry of the mixing arms is such that they generate downwardly directing motion on the composition being mixed, the materials being mixed to form a mixture in the change can mixer comprising:

- (i) a polysiloxane having more than 40 siloxane units, which is selected from the group consisting of trialkylsilyl end blocked polysiloxanes, and polysiloxanes having at least one silicon bonded alkenyl group, hydroxyl group, and hydrolysable group;
- (ii) a reinforcing filler material selected from the group consisting of finely divided silica, surface treated finely divided silica, calcium carbonate, surface treated finely divided calcium carbonate, quartz powder, aluminium hydroxide, zirconium silicate, diatomaceous earth, and titanium dioxide; and
- (iii) an hydrophobing agent selected from the group consisting of disilazanes and polydiorganosiloxanes having 2-40 siloxane units having silicon bonded hydroxyl groups or amino groups;

with the proviso that each of the materials (i)-(iii) are fed into the change can mixer as the material itself, or as a mixture containing one or more of materials (i)-(iii); and wherein the materials being mixed to form the mixture in the change can mixer include water.

34. (Currently Amended) A process for the production of a polysiloxane containing mass incorporating surface treated filler materials comprising feeding materials to a change can mixer in which the materials are mixed; the change can mixer comprising a detachable mixing head assembly containing at least two spiral mixing arms extending downwardly into a can of the change can mixer, drive means for rotating the spiral mixing arms around their own axis, and drive means for rotating the spiral mixing arms as a unit around the axis of the can and wherein the geometry of the mixing arms is such that they generate downwardly directing motion on the composition being mixed, the materials being mixed to form a mixture in the change can mixer comprising:

- (i) a polysiloxane having more than 40 siloxane units, which is selected from the group consisting of trialkylsilyl end blocked polysiloxanes, and polysiloxanes having at least one silicon bonded alkenyl group, hydroxyl group, and hydrolysable group;
- (ii) a reinforcing filler material selected from the group consisting of finely divided silica, surface treated finely divided silica, calcium carbonate, surface treated finely divided calcium carbonate, quartz powder, aluminium hydroxide, zirconium silicate, diatomaceous earth, and titanium dioxide; and
- (iii) an hydrophobing agent selected from the group consisting of disilazanes and polydiorganosiloxanes having 2-40 siloxane units having silicon bonded hydroxyl groups or amino groups;

with the proviso that each of the materials (i)-(iii) are fed into the change can mixer as the material itself, or as a mixture containing one or more of materials (i)-(iii); and wherein the spiral mixing ~~[[tools]]~~ arms carry a non metallic edge to avoid build up of material on the pot walls.

35. (Previously Presented) A process in accordance with claim 34 wherein after mixing, the resulting mixture is conveyed into and through a means for introducing additives into the mixture.

36. (Previously Presented) A process in accordance with claim 35 wherein the means for introducing additives into the mixture is a twin screw extruder, a single screw extruder, or an apparatus for continuously preparing viscous compositions containing additives.
37. (Previously Presented) A process according to claim 34 in which the finely divided filler comprises fumed silica or precipitated silica.
38. (Previously Presented) A process according to claim 34 in which the mixture is in the form of a paste or a powder.
39. (Previously Presented) A process according to claim 34 in which the mixture is further compounded with one or more other materials comprising curative agents, catalysts, inhibitors, plasticising agents, extending agents, and non-reinforcing fillers, to provide a curable product.
40. (Previously Presented) A process according to claim 34 in which the change can mixer contains 2-5 spiral mixing arms extending downwardly into the can of the change can mixer.
41. (Previously Presented) A process according to claim 40 in which the change can mixer contains three spiral mixing arms spaced 120 degrees apart circumferentially with respect to the centre line of the can of the change can mixer.